Claims

1. A radial spherical crystallization product comprising needle-shaped projections radiating from the crystal core.

2. The radial spherical crystallization product according to claim 1 having an aerodynamic diameter of 0.1-20 μm.

3. The radial spherical crystallization product according to claim 1 or 2 having a bulk density of 100 mg/ml or less.

4. A radial spherical crystallization product obtained by emitting a supercritical fluid or a mixture of a supercritical fluid and a modifier and a solution comprising a sample component into a crystallization vessel through different flow channels to cause them to come in contact with each other as they are emitted into the crystallization vessel.

5. The radial spherical crystallization product according to claim 4, wherein the supercritical fluid or the mixture of the supercritical fluid and a modifier is a poor solvent for the sample component.

6. The radial spherical crystallization product according to claim 4 or 5, wherein the sample component is a pharmaceutical drug.

7. The radial spherical crystallization product according to claim 4 or 5, wherein the sample component is a drug carrier.

8. The radial spherical crystallization product according to claim 7, wherein the drug carrier is a sugar or sugar alcohol.

9. The radial spherical crystallization product according to any one of claims 4-8, wherein the supercritical fluid is carbon dioxide.

10. The radial spherical crystallization product according to any one of claims 4-9, wherein the modifier is ethanol.

11. The radial spherical crystallization product according to any one of claims 1-10 used as a raw drug for a dry powder preparation.

12. The radial spherical crystallization product according to any one of claims 1-10 used as a drug carrier for a dry powder inhaler.

13. A method for manufacturing a radial spherical crystallization product characterized by injecting a supercritical fluid or a mixture of a supercritical fluid and a modifier and a solution comprising a sample component into a crystallization vessel through different flow channels to cause them to come in contact with each other as they are emitted into the crystallization vessel.

14. The method for manufacturing a radial spherical crystallization product according to claim 13, wherein the supercritical fluid or the mixture of the supercritical fluid and a modifier is a poor solvent for the sample component.

15. The method for manufacturing a radial spherical crystallization product according to claim 13 or 14, wherein the sample component is a pharmaceutical drug.

16. The method for manufacturing a radial spherical crystallization product according to claim 13 or 14, wherein the sample component is a drug carrier.

17. The method for manufacturing a radial spherical crystallization product according to claim 16, wherein the drug carrier is a sugar or sugar alcohol.

18. The method for manufacturing a radial spherical crystallization product according to any one of claims 13-17, wherein the supercritical fluid is carbon dioxide.

19. The method for manufacturing a radial spherical crystallization product according to any one of claims 13-18, wherein the modifier is ethanol.

20. A dry powder inhaler comprising the radial spherical crystallization product according to claim 6 as an active ingredient.

21. A dry powder inhaler comprising the radial spherical crystallization product according to claim 7 or 8 as a carrier.